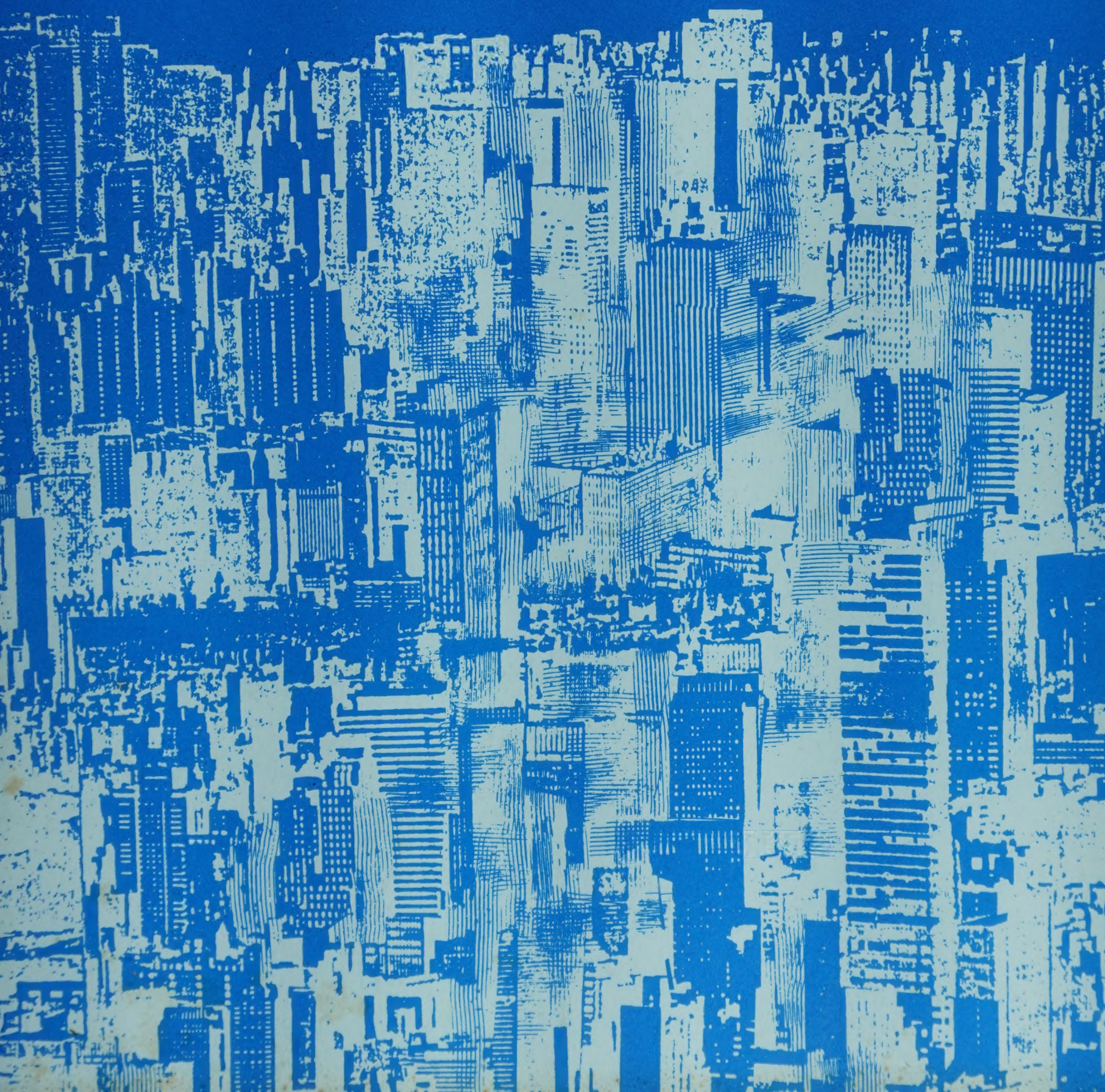




United Nations

# Population Growth and Policies in Mega-Cities

DELHI





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Department of International Economic and Social Affairs

POPULATION POLICY PAPER NO. 7

# Population Growth and Policies in Mega-Cities

DELHI



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#### NOTE

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The terms "country" and "area" as used in the text of this report also refer, as appropriate, to territories, cities or areas.

The present study has been edited and consolidated in accordance with United Nations practice and requirements.

ST/ESA/SER.R/68



## PREFACE

This publication is one in a series of studies being prepared by the Population Division of the Department of International Economic and Social Affairs of the United Nations Secretariat which focus on the population policies and plans of some mega-cities in developing countries, cities that are expected to have populations of at least 8 million inhabitants by the year 2000.

The object of the series is to examine the formulation, implementation and evaluation of the population policies of mega-cities from a broad perspective, emphasizing the reciprocal links between population and development in the spirit of the World Population Plan of Action. <sup>1/</sup> The development of population policies to improve the standard of living and the quality of life of the inhabitants of the world's largest cities is a highly complex and multifaceted activity. It involves, for example, not only the analysis of migration trends, the preparation of population projections, and the formulation of population distribution strategies but also the provision of cost-effective urban infrastructure (e.g., housing, water, sewerage, transportation, and health and educational facilities), the monitoring and creation of employment, the assembly of urban land for development projects, the improvement of municipal revenue-raising mechanisms and the establishment of effective institutional arrangements for planning and managing urban growth.

Each of the technical papers in this series follows a common format consisting of five major sections. Section I provides basic information on demographic trends and reviews the use of demographic data in planning for rapidly growing urban populations. Section II presents background information on the city's economic base, the spatial structure

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<sup>1/</sup> See Report of the United Nations World Population Conference, 1974, Bucharest, 19-30 August 1974 (United Nations publication, Sales No. E.75.XIII.3), chap. 1, and Report of the International Conference on Population, 1984, Mexico City, 6-14 August 1984 (United Nations publication, Sales No. E.84.XIII.8 and Corr. 1 and 3), chap. I, sect. B.



of the metropolitan region and the sectoral and spatial distribution of jobs, all of which are crucial to a proper understanding of how population distribution strategies operate. Section III reviews early decentralization strategies and how they were evaluated and revised by local planners and then examines current population distribution strategies for the metropolitan region. Section IV deals with a number of key issues and sectors - the labour market, urban land, housing, water supply and so on - from the perspective of planning for rapidly growing urban populations and managing urban growth. Wherever possible, attention is given in that section to the extent to which various sectoral policies may have served as implicit spatial policies that reinforced or perhaps counteracted explicit spatial goals. Finally, section V examines the sectoral distribution of public investment and how that investment has influenced the achievement of spatial goals, how individual cities have generated revenue for municipal projects, and what types of institutional arrangements have been established to plan for and manage urban growth.

To date, reports issued in the Population Growth and Policies in Mega-Cities series are:

CALCUTTA	(ST/ESA/SER.R/61)
SEOUL	(ST/ESA/SER.R/64)
METRO MANILA	(ST/ESA/SER.R/65)
BOMBAY	(ST/ESA/SER.R/67)



## CONTENTS

	<u>Page</u>
Preface .....	iii
Explanatory notes/Abbreviations .....	vii
Introduction .....	1
 <u>Chapter</u>	
I. DEMOGRAPHIC CHARACTERISTICS .....	4
A. Population growth .....	4
B. Migration .....	6
C. Population projections .....	7
II. THE ECONOMY .....	9
A. Historical background and development of the city's economic base .....	9
B. Recent performance of the economy .....	10
C. Spatial structure of the metropolitan region .....	10
D. Sectoral and spatial distribution of jobs .....	14
E. The city in the region .....	17
III. DECENTRALIZATION AND LOCATION .....	18
A. The evolution of spatial strategies .....	18
B. Current spatial strategies .....	19
IV. ISSUES AND SECTORS .....	23
A. The labour market .....	23
B. Urban land .....	24
C. Housing .....	25
D. Water supply and environmental problems .....	27
E. Power .....	28
F. Health and education .....	29
G. Transport .....	29
V. RESOURCES AND MANAGEMENT .....	31
A. Public investment .....	31
B. Resource generation .....	31
C. The institutional context .....	32
CONCLUSION .....	33
<u>Annex</u> Total population of Delhi (Union Territory), 1981 ...	36
REFERENCES AND SELECTED SOURCES .....	37



### List of tables

	<u>Page</u>
1. Total population and average annual rate of growth of urban areas of Delhi, 1901-1981 .....	5
2. Population of major planning divisions in urban areas of Delhi, 1981, and projected population, 2001 .....	8
3. Distribution of non-agricultural enterprises, by sector and by Economic Census Zone, 1980 .....	13
4. Distribution of the labour force in Delhi (Union Territory), 1951-1981, and projected labour force, 2001 .....	15
5. Growth of government employment, 1961-1981, and projected employment, 2001 .....	16

### List of figures

	<u>Page</u>
I. National Capital Region .....	3
II. Urbanized area of Delhi .....	11



## EXPLANATORY NOTES

Symbols of United Nations documents are composed of capital letters combined with figures. Mention of such a symbol indicates a reference to a United Nations document.

Reference to "dollars" (\$) indicates United States dollars, unless otherwise stated.

The term "billion" signifies a thousand million.

Annual rates of growth or change refer to annual compound rates, unless otherwise stated.

A hyphen between years (e.g., 1984-1985) indicates the full period involved, including the beginning and end years; a slash (e.g., 1984/1985) indicates a financial year, school year or crop year.

A point (.) is used to indicate decimals.

The following symbols have been used in the tables:

Two dots (..) indicate that data are not available or are not separately reported.

A dash (--) indicates that the amount is nil or negligible.

A hyphen (-) indicates that the item is not applicable.

A minus sign (-) before a number indicates a deficit or decrease, except as indicated.

Details and percentages in tables do not necessarily add to totals because of rounding.

Crore is an Indian term meaning 10 million rupees.

Lakh is an Indian term meaning 100 thousand rupees.

The following abbreviations have been used:

CBD	-	Central Business District
DDA	-	Delhi Development Authority
DMA	-	Delhi Metropolitan Area
DMC	-	Delhi Municipal Corporation
LRT	-	Light Rail Transit Line
NCR	-	National Capital Region
NDMC	-	New Delhi Municipal Corporation
NSDP	-	Net State Domestic Product







## INTRODUCTION

India's national capital and third ranking metropolitan area in population size (with an urban population of 5,770,000 in 1981 and a total population of 6,220,000 in the Union Territory), 1/ Delhi is the most rapidly growing of India's four largest cities and the only one of the country's 12 metropolitan areas to have had consistently high population growth since partition. 2/ During 1971-1981, the urban population of Delhi grew at an average annual rate of 4.7 per cent, slightly higher than in the preceding census decade, when it grew at 4.5 per cent. According to the United Nations 1984 assessment, Delhi was the twenty-fourth largest city in the world in 1985 and is projected to be the eleventh largest by the year 2000 (United Nations, The Prospects of World Urbanization as Assessed in 1984, forthcoming).

Delhi has a number of advantages over India's other large metropolitan cities. It has a relatively strong and diversified economy, one of the highest levels of per capita income of any of India's states or territories, 3/ newer building stock, a well-developed road network, and large expanses of green space within the city limits. 4/ Moreover, because Delhi is India's national capital, it has received somewhat greater attention and a larger share of funding from the Government of India, which believes that the city's orderly development should serve as a model for the nation.

Concern has been expressed, however, about Delhi's ability to absorb future population growth yet continue to maintain its image as capital of the country. There is currently heavy congestion and poor environmental conditions in the old walled city and serious infrastructure lags (e.g., a shortfall in the supply of treated water, an inadequate sewerage network, power shortages). Unless a number of ambitious large-scale infrastructure projects are completed as scheduled, there will be serious deficits by the end of the century. Although housing has been the sector with the most impressive record, as of 1985 some 158,000 Delhi households were on waiting lists for various types of public housing, and more than 200,000 households were living in the city's 600 unauthorized colonies. Looking to the future, planners foresee the need to treble or even quadruple the city's basic infrastructure by the end of the century and to create jobs for more than 2,900,000 workers (Delhi Vikas Varta, 1985).

For the past quarter of a century, attempts have been made to reduce congestion in central Delhi and to slow its rapid population growth. The Master Plan for Delhi (1962) aimed at promoting a policentric pattern of development by establishing dispersed industrial and commercial areas, along with residential colonies. Plans were also

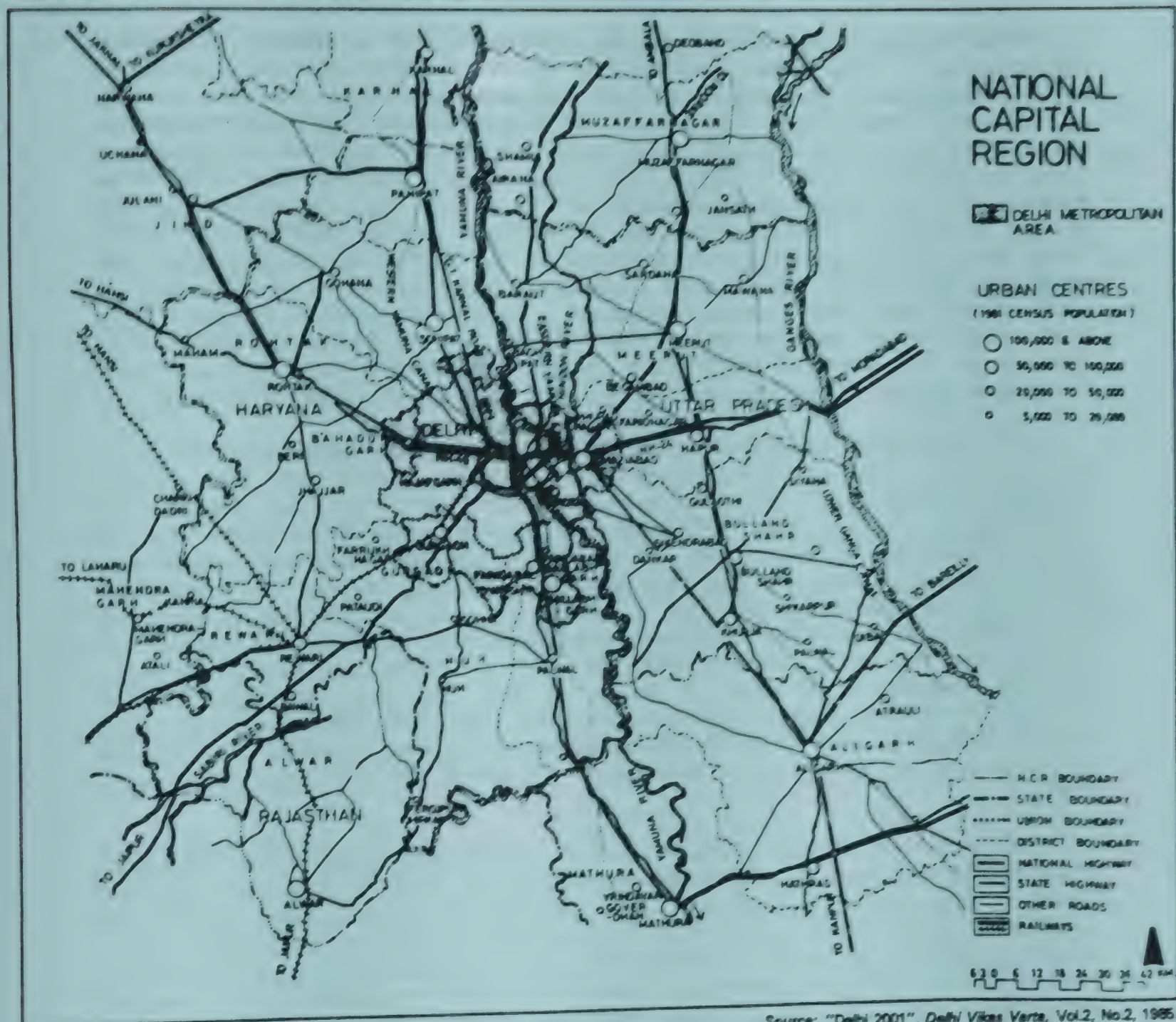


put forward for the integrated development of a National Capital Region (NCR), based on the idea of decentralizing employment to medium-sized cities in contiguous states (fig. I).

During the past two decades, however, the process of urban development in Delhi has diverged considerably from that envisioned in the Master Plan. The Union Territory of Delhi has continued to grow at rapid rates. Employment has become more rather than less concentrated in the central city, whereas decentralization has proceeded slowly. Given the magnitude of the problems to be faced in the coming decades, planners have recently drafted a second Master Plan. In addition, the National Capital Region concept has been revived, in recognition of the growing interdependencies among the various parts of the metropolitan region.



Figure 1. National Capital Region





## I. DEMOGRAPHIC CHARACTERISTICS

### A. Population growth

From an urban agglomeration that may have had as many as 2 million inhabitants in the late seventeenth century, Delhi declined steadily both in population and political and economic power for the next century and a half. The urban population of Delhi district 5/ was 173,000 in the census of 1881, whereas the total population of the district was about twice that size. Delhi grew very slowly during the next three decades and had an urban population of 238,000 in 1911 - the year before it was designated Imperial Capital of British India. During 1911-1921, Delhi nearly quadrupled in area (from 43 to 168 square kilometres) and began to experience more rapid population growth, which accelerated in each of the next three census decades. From a population of 304,000 in 1921, Delhi urban agglomeration reached 448,000 in 1931, and 696,000 in 1941, with the rate of population growth increasing from 3.9 per cent per annum during 1921-1931 to 4.5 per cent during 1931-1941 (table 1).

The 1941-1951 census decade was one of complex demographic change. In the first half of the census decade, Delhi functioned as a major military supply base for the allied nations and received significant in-migration. There was a slight decline in natural increase due to wartime disruption and then a rise in natural increase following demobilization. Natural increase declined sharply during the last four years of the census decade as a result of the disruptive effects of partition on family life, and there was a massive movement of population in and out of Delhi and across the Indo-Pakistan frontier. In all, 329,000 Muslims moved out of Delhi during the four-year period and 495,000 Hindu and Sikh refugees arrived (Rao and Desai, 1965). The normal inflow of non-refugee migrants also continued, with non-refugee additions to the population amounting to about 206,000 (Rao and Desai, 1965).

As a result of the massive influx of refugees and other migrants following partition, Delhi urban agglomeration grew by 7.5 per cent per annum during 1941-1951 and more than doubled in size - from 696,000 to 1,437,000 inhabitants. Its rate of population growth remained high - slightly over 5 per cent - during 1951-1961, dropped off to 4.5 per cent during 1961-1971 and remained more or less at that level during 1971-1981, when it grew at an average annual rate of 4.7 per cent (India, 1982). The urban population of Delhi increased from 2,359,000 in 1961 to 3,647,000 in 1971 and to 5,770,000 in 1981. 6/

On the basis of registered births, there has been a slight increase in Delhi's crude birth rate (from 24-25 per thousand in the late 1970s to about 27 per thousand since 1980), which probably reflects not only better compliance with registration laws, but also the migration of



Table 1. Total population and average annual rate of growth of urban areas of Delhi, 1901-1981 a/

	Total population (thousands)								
	1901	1911	1921	1931	1941	1951	1961	1971	1981
Delhi (DMC)	214	238	304	374	579	1120	2062	3289	4884
New Delhi (NDMC)	-	-	-	74	94	276	262	302	273
Delhi Cantonment	-	-	-	-	23	41	36	57	85
Other urban <u>b/</u>	-	-	-	-	-	-	-	-	526
Total	214	235	304	448	696	1437	2360	3648	5768

	Average annual rate of growth (percentage)								
	1901- 1911	1911- 1921	1921- 1931	1931- 1941	1941- 1951	1951- 1961	1961- 1971	1971- 1981	
1. Delhi (DMC)	1.1	2.5	2.1	4.5	6.8	6.3	4.8	4.0	
2. New Delhi (NDMC)	-	-	-	2.4	11.4	-0.5	1.4	-1.0	
3. Delhi Cantonment	-	-	-	-	6.0	-1.2	4.7	4.1	
4. Other urban <u>b/</u>	-	-	-	-	-	-	-	-	
Total	1.1	2.5	4.0	4.5	7.5	5.1	4.5	4.7	

Source: Registrar General and Census Commissioner. Census of India 1981: Final Population Totals; Census of India 1971: General Population Tables; Census of India 1951: Final Population Tables (Delhi, Controller of Publications).

a/ According to the Census of India 1981, the major census areas in Delhi are the Delhi Municipal Corporation (DMC), the New Delhi Municipal Corporation (NDMC), and Delhi Cantonment.

b/ For other urban areas, refer to Annex I, Nos. 4-30.



large numbers of persons in the reproductive ages. The crude death rate has remained nearly constant during the past decade, at a level of 7 per thousand population, whereas the infant mortality rate has registered a slight decline - from around 55 per thousand live births during the mid 1970s to 48 per thousand in 1982. There have been significant fluctuations in the infant mortality rate, however, from year to year (Delhi Administration, Delhi Quarterly Digest of Economics and Statistics, 1984). With respect to population structure, as of 1981 35.0 per cent of the urban population in the Union Territory of Delhi was under 15 years of age, 61.6 per cent was in the 15-59 year-old age groups, and 3.4 per cent was over 60 years of age. The sex ratio was 124 males per 100 females, indicating the presence of significant numbers of male migrants. Average household size in the urban area, as well as in the Union Territory as a whole, was 5.1 (India, 1983).

With respect to the distribution of population within the Union Territory - an area of 148,639 hectares that includes Delhi urban agglomeration and intervening rural areas - 85 per cent of the total urban population of the Union Territory resides in Delhi Municipal Corporation (DMC), whereas another 5 per cent resides in New Delhi Municipal Corporation (NDMC) and Delhi Cantonment. The balance of the urban population reside in 27 settlements defined as towns (i.e., settlements with more than 5,000 inhabitants) in the 1981 census (annex I). In addition, some 450,000 persons reside within the rural areas of the Union Territory.

#### B. Migration

Migration has contributed more than natural increase to Delhi's population growth, particularly since 1940. Delhi received significant in-migration during the Second World War, when the proportion of annual population growth attributable to net migration rose to about 85 per cent (Rao and Desai, 1965). The share of net migration declined to 71 per cent at the time of partition but subsequently increased to 82 per cent in 1949 (Rao and Desai, 1965). During the mid 1950s, natural increase and net migration made approximately equal contributions to population growth. However, the share of migration was greater than natural increase in all subsequent census decades. According to the 1981 census, there was an absolute increase of 2,120,000 persons in Delhi urban agglomeration during 1971-1981, to which net migration contributed two thirds and natural increase about one third (Delhi Development Authority, 1981c).

As a result of the inclusion of new census questions, there has been an increase in the amount of information available on the characteristics of migrants. In the 1971 census, a question was included for the first time on place of last residence, in addition to a



question on place of birth. In the 1981 census, the scope of enquiry was further broadened with the inclusion of a question on reasons for migration from place of last residence. According to data from the 1981 census, the 3,400,000 persons who were born outside of Delhi constituted 54.6 per cent of the total population, whereas the 2,989,000 persons who reported that they had changed their place of residence constituted 48 per cent. More than one third (37 per cent) of the total number of migrants were from the neighbouring state of Uttar Pradesh, whereas 25 per cent of the total were from one of the three neighbouring states of Haryana, Punjab and Rajasthan (India, 1985). Two thirds of all migrants to Delhi, including those from urban and rural areas, were classified as literate. Ninety per cent of total migrants were reported to be employed, compared to 31 per cent of the general population. Migrants entered into different sectors of the labour force in almost the same proportion as total workers (Delhi Development Authority, 1981a).

With respect to the reasons for migrating from the place of last residence, the largest proportion of migrants to Delhi, 41 per cent, reported that they had moved for family reasons; that was the reason given by 49 per cent of female migrants and 35 per cent of males. The second largest proportion, 28 per cent, had moved to find employment. However, whereas employment was the reason reported by 47 per cent of males, it was reported by only 0.05 per cent of females. The next largest proportion of total migrants, 14.3 per cent, had moved because of marriage; however, females constituted more than 99 per cent of the migrants in this group. Nearly an equal proportion (14.2 per cent) had moved for "other reasons". The smallest proportion of total migrants, only 0.02 per cent, reported that they had moved for educational reasons (India, 1985).

### C. Population projections

Delhi's first series of population projections, which were included in the Master Plan for Delhi (1962), forecast a population of 4,600,000 by 1981. In 1977, when it was apparent that the city's population would easily surpass that figure, the projection for 1981 was revised upward to 5,200,000. However, the population actually enumerated in the 1981 census was 5,770,000 - 25 per cent larger than the population projected 20 years before.

According to the most recent population projections prepared by the Delhi Development Authority (DDA), at current growth rates, Delhi's population would increase to 14,000,000 by 2001 (Delhi Vikas Varta, 1985). Environmentalists and planners working in Delhi consider this figure to be unacceptable, however, and have adopted 12,800,000 as a target population for planning purposes. The latter projection assumes an average annual rate of population growth of 4 per cent during



1981-1991, declining to 3.5 per cent during 1991-2001. With respect to the distribution of Delhi's population in 2001, a majority of the population, or about 8,200,000 inhabitants, are targeted to be accommodated within the current urbanized area of the Union Territory (DDA, 1981c). Another 4,000,000 Delhi residents will be accommodated in the so-called urban extension, that is, in areas contiguous to the existing urbanized area that are designated for development, and the remaining 600,000 on the urban periphery, that is, on the metropolitan fringes beyond the urban extension.

The proposed distribution of population in 2001 by major planning divisions assumes wide differentials in the growth rates of different areas of Delhi. Whereas the population residing within the current urbanized area is expected to increase from 5.5 million to 8.2 million inhabitants between 1981-2001, or by about 2 per cent per annum, the population of Old Delhi (planning division A) is projected to decline by nearly 2 per cent per annum over this period. The adjacent areas of Civil Lines and Karol Bagh (divisions B and C) are projected to grow rather slowly, whereas planning divisions D, E, F, and G are projected to grow at moderate rates (table 2). However, the population of Northwest Delhi is projected to grow by nearly 6 per cent per annum up to the end of the century.

Table 2. Population of major planning divisions in urban areas of Delhi, 1981, and projected population, 2001

Planning division a/		Population (thousands)		Projected annual growth rate
		Census, 1981	Proposed, 2001	
A	Old Delhi	620	420	-1.9
B	Karol Bagh	560	610	0.4
C	Civil Lines	580	710	1.0
D	New Delhi	490	700	1.8
E	Shahdara	1020	1630	2.4
F	New Delhi South	820	1190	1.9
G	West Delhi	860	1360	2.3
H	Northwest Delhi	510	1590	5.8
Total		5460	8210	2.1

Source: Delhi Vikas Varta, vol. 2, No. 2 (Special issue, 1985).

a/ The major planning divisions in Delhi do not correspond to the major census areas.



## II. THE ECONOMY

### A. Historical background and development of the city's economic base

Unlike India's other large metropolitan cities (e.g., Calcutta, Bombay, Madras), which trace their origins to outposts of the British East India Company, Delhi is an ancient city that has been built and rebuilt numerous times. A Hindu city from the middle of the eleventh to the end of the twelfth century, a number of Delhis rose, prospered for varying periods and then declined during the course of six and a half centuries of Muslim rule. In 1638, the fifth Moghul emperor, Shajehan, the builder of the Taj Mahal, began construction of the Red Fort and the walled city of Shajehanabad (the Old Delhi of the present day), which remained the capital of the Moghul empire for the next two centuries. Delhi entered a long and protracted decline beginning in the eighteenth century, which was marked by Maratha raids, 7/ famine and civil war. In the mid-nineteenth century, the British colonial authorities enacted a series of punitive measures (including the expulsion of the Muslim population from the walled city and demolition of the densely populated settlements surrounding the Red Fort) which, in effect, marked the end of the long period of Moghul rule in India (Rao and Desai).

In a climate of greater political stability, Delhi began to revive in the latter half of the nineteenth century. Trade and commerce expanded, largely as a result of the construction of the Indian railway network, which linked landlocked Delhi to other regions of the country and to various ports. Designated the Imperial Capital of British India in 1912, Delhi re-acquired the political function that had fostered the growth of all Delhis of the past. The city's administrative and commercial functions expanded gradually during the 1920s and 1930s. However, it was the Second World War which provided a major impetus to growth by stimulating a boom in commerce, industry and transport. Following demobilisation, Delhi experienced a fairly easy transition from war-related to civilian activities and there was little contraction of the economy. Although partition of the Indian sub-continent brought refugee movements on a massive scale, followed by difficult years of adjustment and resettlement, the half a million Hindu and Sikh refugees who arrived in Delhi on balance contributed to its development. 8/ Moreover, the special rehabilitative measures undertaken by the Government - such as the construction of housing and other facilities - stimulated the economy and provided employment for large numbers of Delhi residents.

There have been significant changes in the structure of Delhi's economy over the years. The relative share of the primary sector in the net state domestic product (NSDP) decreased from 7.0 to 3.9 per cent between 1970/71 and 1982/83. The share of the secondary sector also



fell, from 25.6 to 20.7 per cent. However, the share of the tertiary sector gradually increased - from 67.3 per cent to 75.5 per cent (Delhi Administration, 1985b).

Whereas tertiary activities, especially the public sector and trade and services, constitute Delhi's economic base, manufacturing has expanded gradually and has become more diversified. Currently, the most important lines of manufacturing are electrical goods and electronic machinery, metal products, rubber, plastic and petroleum products, transport equipment, paper products, machinery and tools, wood and wood products, and basic metals and alloys.

#### B. Recent performance of the economy

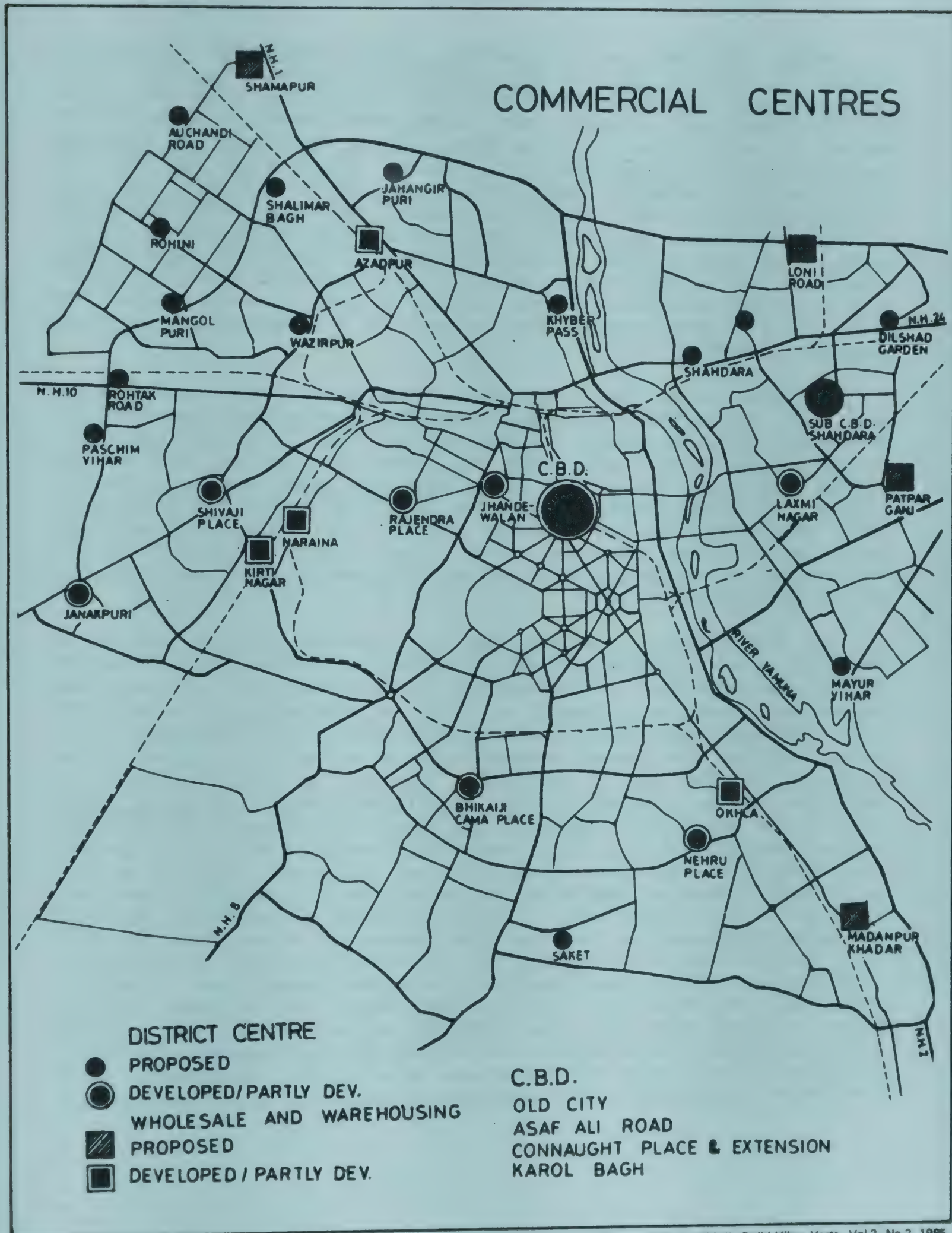
Delhi's economy has been fairly strong in recent years. The total state income by industry of origin for 1982/83 was Rs 2,204 crores at current prices, an increase of 10.8 per cent over the preceding year. The relative contribution of the various sectors of the metropolitan economy has remained more or less unchanged in recent years, with manufacturing accounting for 17.7 per cent of output (at current prices), followed by public administration (15.2 per cent), banking and insurance, (13.4 per cent), transport and communications (12.1 per cent), trade, hotel and restaurants (12.1 per cent) and "other services" (11.6 per cent). The remaining contribution was made by real estate (6.8 per cent), utilities (3.4 per cent), construction (2.1 per cent), and the primary sector (5.6 per cent) (Delhi Administration, 1985b).

#### C. Spatial structure of the metropolitan region

Part ancient walled city, part formally planned imperial capital, part modern business city and part sprawling high density city of traditional bazaars, Delhi is a metropolitan area of striking contrasts (fig. II). Following the transfer of India's capital to Delhi in 1912, the British expanded its physical limits, designating a number of areas for special uses. The area north of Old Delhi - the Civil Lines Notified Area - was informally planned. Two new areas to the south and southwest - New Delhi and Delhi Cantonment (a military area) - were formally planned and very rigidly controlled. Because the city's outward expansion was therefore essentially blocked in the north and south (as well as in the east by the Yamuna River), Delhi's rapidly growing population settled either at high densities within the walled city and surrounding areas or sprawled beyond the ridge that runs along the city's western boundary.



Figure II. Urbanized area of Delhi





During the past several decades, there have been significant changes in Delhi's patterns of population distribution. The city's rapidly growing population has leapfrogged over planned areas and spread in all directions. However, the areas noted above continue to be subject to strict planning legislation. Delhi Cantonment has acquired various commercial functions but remains in military use and is classified as a separate census area. The part of New Delhi that was formally planned by Edwin Lutyens is mainly a government city (e.g., the site of Parliament, the Central Secretariat, the diplomatic enclave). However, it also contains Connaught Circus, a major commercial centre that functions as the core of Delhi's Central Business District (CBD). With a resident population of only 273,000 in 1981, formally planned New Delhi is a separate census area as well as an independent Municipal Corporation (NDMC).

The much larger Delhi Municipal Corporation (DMC), which had a population of 4,884,000 in 1981, encompasses the southern extension of New Delhi, a predominantly residential area (pop. 872,000) (table 3). To the north, Civil Lines, which functioned as temporary seat of the central government during the years when New Delhi was being built, retains some administrative functions (e.g., it houses the offices of Delhi Administration, the district courts, Delhi University) but has become an important commercial area. Also a part of Delhi Municipal Corporation, Civil Lines had a residential population of nearly half a million inhabitants in 1981.

Old Delhi, Delhi's original CBD (and currently part of the larger CBD that also encompasses Asaf Ali Road, Karol Bagh and Connaught Circus), has lost part of its residential population over the years and has become increasingly commercial. With a population of 434,000, Old Delhi contains sprawling, traditional bazaars (e.g., Chandni Chowk bazaar) and has the largest concentration of wholesale and retail shops in Delhi. To the east of Old Delhi, Paharganj is a densely populated area that houses a number of old, established industries (e.g., Delhi Cloth Mills) and large numbers of small-scale manufacturing units. The western extension of Old Delhi, Karol Bagh, contains the second largest concentration of manufacturing units of any area within the city as well as a large number of wholesale and retail shops (table 3). West and South Delhi, which were both initially developed as residential areas to accommodate refugees, are now important commercial areas; moreover, West Delhi has not only become a major manufacturing pole, but also currently contains one third of total construction-related enterprises in the city (table 3). Najafgarh (in the west) and Narela (in the east) are two former villages that have been recently annexed to the DMC. In the east, across the Yamuna river, the rapidly growing Shahdara zone has a population of more than three quarters of a million inhabitants. With the largest concentration of manufacturing units in Delhi (19 per cent



Table 3. Distribution of non-agricultural enterprises, by sector and by Economic Census Zone, 1980

Zone or Shahdara	Total population (thousands)									
	1	2	3	4	5	6	7	8	9	10
Shahdara	753 (12.8)	14 138 (19.0)	31 (4.5)	540 (14.8)	15 424 (14.5)	2 353 (14.9)	2 168 (21.9)	331 (4.0)	47 (11.5)	681 (5.9)
City	434 (7.4)	9 401 (12.6)	80 (11.7)	323 (8.9)	20 387 (19.1)	2 206 (14.0)	771 (7.8)	3 589 (42.8)	29 (7.1)	3 660 (31.5)
Paharganj	827 (14.1)	10 804 (14.5)	42 (6.1)	194 (5.3)	13 555 (12.7)	1 871 (11.9)	1 318 (13.3)	1 658 (19.9)	19 (4.7)	1 415 (12.2)
Karol Bagh	639 (10.9)	11 915 (16.0)	53 (7.7)	538 (14.7)	11 438 (10.7)	1 773 (11.3)	1 029 (10.4)	6 423 (7.7)	43 (10.5)	932 (8.0)
Civil Lines	496 (8.4)	6 324 (8.5)	77 (11.2)	190 (5.2)	11 292 (10.6)	1 834 (11.6)	1 034 (10.4)	977 (11.7)	53 (13.0)	934 (8.0)
Narela	50 (0.9)	310 (0.4)	14 (2.0)	15 (0.4)	504 (0.5)	123 (0.8)	46 (0.5)	2 (0.1)	4 (1.0)	67 (0.6)
New Delhi South	872 (14.8)	4 480 (6.0)	89 (13.0)	248 (6.8)	6 612 (6.2)	1 516 (9.6)	454 (4.6)	234 (2.8)	44 (10.8)	814 (7.0)
South Zone	532 (9.0)	2 821 (3.8)	116 (16.9)	221 (6.1)	5 494 (5.2)	881 (5.6)	179 (1.8)	146 (1.7)	36 (8.8)	407 (3.5)
West Zone	811 (13.8)	11 746 (15.8)	84 (12.2)	1 223 (33.5)	15 696 (14.7)	1 956 (12.4)	2 315 (23.3)	564 (6.7)	58 (14.2)	822 (7.1)
Najafgarh	105 (1.8)	1 162 (1.6)	4 (0.6)	99 (2.7)	2 167 (2.0)	290 (1.8)	140 (1.4)	33 (0.4)	5 (1.2)	65 (0.6)
New Delhi (ND)	273 (4.7)	1 042 (1.4)	89 (1.4)	44 (13.0)	3 719 (1.2)	855 (3.5)	428 (4.3)	145 (1.7)	65 (15.9)	1 796 (15.5)
Delhi Cantonment	85 (1.5)	319 (0.4)	7 (1.0)	16 (0.4)	438 (0.4)	108 (0.7)	36 (0.4)	62 (0.7)	5 (1.2)	31 (0.3)
Total	5 520 (100.00)	74 462 (100.00)	686 (100.00)	3 651 (100.00)	106 726 (100.00)	15 766 (100.00)	9 918 (100.00)	8 383 (100.00)	408 (100.00)	11 624 (100.00)

Sources: Delhi Administration, Economic Census 1980: Summary Results (Delhi, 1983).

Note: Figures in parentheses are percentages

2/ Whereas the New Delhi (NDMC) and Delhi Cantonment Economic Census Zones correspond to major census areas, the remaining Economic Census Zones are within the Delhi (DMC) census areas.

b/

1. Manufacturing and repairs
2. Electricity, gas and water
3. Construction
4. Wholesale and retail trade
5. Restaurants and hotels
6. Transport
7. Storage and warehousing
8. Communications
9. Financial, insurance, real estate and business services
10. Community, social and personal services



of total units) as well as a rapidly expanding commercial sector, Shahdara has been designated to be developed into a sub-Central Business District by the end of the century. Clearly, the previous monocentric configuration of Delhi is beginning to break down. Although the CBD and its extensions still contain a large proportion of the city's economic activity, West Delhi and Shahdara are emerging as major commercial and manufacturing poles (see table 3).

Beyond the Union Territory of Delhi, the Delhi Metropolitan Area (DMA) - an area of 3,182 square kilometres - has been redefined and now comprises the Union Territory; Faridabad-Ballabarath Complex (which had a 1981 population of 331,000), NOIDA controlled area, Gurgaon (population 101,000); Bahadurgarh (population 37,000), Kundli, and the extension of the Delhi Ridge in Haryana, as well as intervening rural areas (fig. I) (Delhi Vikas Varta, 1985).

#### D. Sectoral and spatial distribution of jobs

Traditionally a commercial and bureaucratic city, Delhi has been industrializing gradually in recent decades, although it remains the least industrialized of India's four largest metropolitan cities. In 1951, only 15 per cent of Delhi's labour force was employed in industry. By 1981, 569,000 workers, or about 29 per cent of the labour force, were employed in industry, mainly in small-scale units. 9/

Delhi has a larger proportion of its population dependent on services than India's other large metropolitan cities. Some 420,000 workers, or 21 per cent of the labour force, were employed in trade and commerce as of 1981, mainly in the informal sector (table 4). Indeed, of the total of 183,000 commercial establishments recorded in the 1981 census, 45 per cent were classified as informal sector activities (i.e., mainly traditional bazaar-type activities).

The public sector, which employed more than half a million persons as of 1981 (542,000, or 28 per cent of the labour force) is Delhi's largest employer and one of the sectors with the highest rate of growth (4.6 per cent per annum during 1961-1981). Although the sector as a whole has expanded rapidly, there have been significant differentials among sub-sectors. Employment in the Central Government grew by about 2.8 per cent per annum during 1961-1981, whereas employment in Delhi Administration and local bodies grew by 4.3 and 6.9 per cent, respectively (table 5). During the same period, employment in public services grew by nearly 10 per cent and is acknowledged to be one of sectors attracting the largest migration to Delhi (Delhi Vikas Varta, 1985).



Table 4. Distribution of the labour force in Delhi (Union Territory) 1951-1981, and projected labour force, 2001

Major sector	Labour force				
	1951	1961	1971	1981	2001
Agriculture	65 025 (10.2)	71 448 (8.4)	60 856 (5.0)	75 731 (3.8)	72 000 (1.6)
Industry	116 585 (18.2)	187 034 (22.0)	291 585 (23.7)	568 910 (28.6)	1 330 000 (29.7)
Construction	62 054 (9.7)	35 360 (4.1)	65 138 (5.3)	(123 704) (6.2)	231 000 (5.1)
Trade and commerce	124 806 (20.0)	146 727 (17.2)	244 597 (20.0)	420 325 (21.2)	976 000 (21.8)
Transportation and communications	36 019 (5.6)	49 569 (5.8)	114 976 (9.4)	178 820 (9.0)	504 000 (11.3)
Other services (including Government)	234 639 (36.7)	364 312 (42.6)	451 245 (36.7)	618 908 (31.2)	1 367 000 (30.5)
Total labour force	639 128 (100.0)	854 450 (100.0)	1 228 397 (100.0)	1 986 399 (100.0)	4 908 000 (100.0)
Total population	1 744 072	2 658 612	4 065 698	6 220 406	12 810 000
Labour force as percentage of total population	36.6	32.1	30.2	31.9	38.3

Source: Delhi Development Authority, Seminar on Employment: Delhi 1981-2001, 1981; and Delhi Vikas Varta, vol. 2, No. 2 (Special Issue 1985).

Note: Figures in parentheses are percentages.



Table 5. Growth of government employment, 1961-1981, and projected employment, 2001

Sector	Employment (thousands)		Average annual growth rate, 1961-1981	Projected employment (thousands), 2001	Projected average annual growth rate, 1981-2001
	1961	1981			
Central government	144	226	2.3	316	1.7
Public services	22	141	9.7	384	5.1
Delhi Administration	25	58	4.3	153	5.0
Local bodies	31	117	6.9	241	3.7
Total	222	542	4.6	1 094	3.6

Source: Delhi Development Authority, Seminar on Employment: 1981-2001, (Delhi, 1981) and Delhi Vikas Varta, vol. 2, No. 2, (Special issue, 1985).

With respect to the spatial distribution of jobs in Delhi, employment in the central city has been growing steadily, far beyond the numbers visualized in the 1962 Master Plan. As of 1981, some 1,000,000 persons were employed in the central city (in Old Delhi, Civil Lines, Karol Bagh and New Delhi) (Delhi Development Authority, 1981a). Although the Master Plan envisioned large-scale industrial units operating in separate industrial areas, the trend has been quite different. Only 16 per cent of all industrial units (some 8,000 units) were located in these areas as of 1981. In contrast, about half of all industrial units (or 25,000 units) were small units in the light and service category, which were scattered throughout the city in non-conforming areas (DDA, 1981a). The largest single concentration of units - about one fifth of the total - was in Old Delhi. Nearly one third of the total number of units (16,000, or 32.6 per cent) were household industries. The proliferation of retail shops in Delhi also diverged from the scenario presented in the 1962 Master Plan, which anticipated that trade would expand in the formal sector and that the



ratio of retail shops would decline from 16 to 6.6 per thousand between 1961 and 1981. By 1981, the actual ratio of retail shops to inhabitants was 45 per thousand population, and two thirds of those were in the informal sector.

#### E. The city in the region

Although Delhi is the most important city in the north-central part of India, some other urban areas in the region are growing very rapidly. Several of the so-called ring towns - i.e., urban areas that are located outside the Union Territory of Delhi but within the Delhi Metropolitan Area - have had accelerating rates of population growth over the past two decades. Of the ring towns with more than 100,000 inhabitants, Faridabad-Ballabhgarh complex (which had a population of 330,860 in 1981) increased by 7.8 per cent per annum during 1961-1971 and by 12.4 per cent per annum during 1971-1981. Ghaziabad (population 287,170) grew by 6.5 per cent per annum during 1961-1971 and by 9.2 per cent per annum during 1971, whereas Gurgaon (population 100,877) grew by average annual rates of 4.2 and 5.8 per cent, respectively. Beyond the Delhi Metropolitan Area, a number of cities in the larger National Capital Region have been also growing at very rapid rates. Indeed, all urban areas with a 100-kilometre radius of the Union Territory of Delhi grew by a combined average annual rate of 5.8 per cent during 1971-1981. Although the channelling of migrants to these urban areas is an integral part of the Master Plan and of the broader National Capital Region strategy, many of the cities in Delhi's hinterland at present have serious infrastructural lags, and it will be very difficult for them to absorb new migrants. If planners could succeed in diverting migrants to surrounding towns and cities, thereby reducing Delhi's rate of urban growth from the present 4.7 per cent per annum to a desired 3.5 per cent by the mid 1990s, the combined average annual rate of growth of towns in Delhi's hinterland would have to increase from 5.8 per cent per annum to well over 8.5 per cent (Mohan and Pant, 1982).



### III. DECENTRALIZATION AND LOCATION

#### A. The evolution of spatial strategies

The Government of India's overall spatial policies have evolved in an incremental fashion over the past three decades. These policies include a system of industrial licensing designed to promote balanced regional development; direct investment in government-owned enterprises, with preference being given to small towns and cities and rural areas at the expense of the largest cities; policies to equalize delivery prices of such basic products as cement, steel and coal among regions; the promotion of small-scale industries, particularly in small towns and rural areas; and the establishment of industrial estates as a means of dispersing industry from metropolitan areas to small towns and rural areas. Since about 1970 the Government has placed considerable emphasis on developing the country's backward districts. Most recently, the draft Sixth Plan (1980-1985) emphasized the need to promote small towns and medium-sized cities and called for a moratorium to be placed on investment in the very large cities. Whereas some of the above policies and measures adopted over the past three decades have been successful in dispersing industry from the largest metropolitan areas, their impact on reducing the population growth of the largest Indian cities, especially Delhi, has been minimal.

In Delhi, the first post-Independence planning exercise was the Master Plan for Delhi (1962), which assessed deficiencies in the city's infrastructure and projected requirements for a population of 4,600,000 in the year 1981. Essentially, the Master Plan aimed at alleviating congestion in central Delhi and preserving the historical character of the walled city by developing a network of 11 district and sub-district centres - each with a catchment population of 250,000-400,000 inhabitants. This was to be accomplished by restricting employment in the central city, channelling some government employment to the district centres, and implementing various land-use controls. The Master Plan also proposed locating some offices of the central government outside the Union Territory in the surrounding towns.

The idea for the establishment of a National Capital Region (NCR) also emerged during the early 1960s and crystallized 10 years later, with the drafting of the National Capital Region Plan in 1973. Basically, that plan aimed at promoting the balanced development of the national capital region - an area of 30,000 square kilometres which included the Union Territory of Delhi, two districts of Haryana, and parts of Rajasthan - by dispersing economic activity to self-contained regional towns and by improving the regional transportation network.



In the more than 20 years since the Master Plan was issued, only three of the 11 original district centres have been developed. Employment has become more rather than less concentrated in the central core. A majority of industries established during the past two decades are located in non-conforming areas, while more than 600 squatter settlements have grown up in and around the city, mainly on private land. As for the fate of the National Capital Region Plan, while it was approved at both the state and federal level, it did not obtain sufficient legal backing and was never implemented.

#### B. Current spatial strategies

Although planners acknowledge that the 1962 Master Plan left a major legacy - namely, an efficient network of roads and extensive green spaces - they admit that Delhi's actual development diverged considerably from the scenario presented in the Master Plan (Delhi Vikas Varta, 1985). Beginning in 1979, the Perspective Planning Wing of the Delhi Development Authority (DDA) began working on a revised version of the Master Plan. A series of five public seminars were held during 1981 and 1982 to elicit the views of public officials and members of various interest groups on major policy issues. Draft proposals were circulated during 1983 and comments relating to the proposals were taken into account in preparing the revised plan. This plan was reviewed by the DDA at a special session in February 1985, released for public comment once again, and was finally adopted in early 1986.

The revised Master Plan for Delhi, which was prepared within the framework of a new National Capital Region Plan, aims at maintaining the image of Delhi as capital of the country and as a "focus of the developing world"; conserving the city's heritage; providing housing and services for a large and rapidly growing urban population, and particularly for the urban poor; and promoting economic development by means of physical development. The plan envisages providing services for an additional 3,000,000 inhabitants by the end of the century, mainly by modifying urban land uses, restructuring the transportation and utility networks, and developing urban extensions. It aims at restricting certain types of employment, and decentralizing economic activities that are strong employment generators yet neither directly serve Delhi's needs nor are crucial to its functioning as national capital. (These include some government and public sector jobs, a large segment of the city's wholesale trade, 10/ and non-essential commercial activities such as warehousing and storage.) Finally, as a means of stimulating employment and increasing the coverage of basic services, the plan proposes to promote sub-centring within the urbanized area (e.g., through the development of district and sub-district centres, decentralized shopping-cum-commercial complexes, and regional wholesale markets).



Although the DDA has acknowledged that the first Master Plan was largely overtaken by events, it intends to proceed with the development of district centres, which was one of the major aspects of the earlier plan. Currently, three of the 11 originally proposed district centres - Nehru Place, Rajendra Place and Bhikaji Cama Place - have been developed (fig. II). Three other district centres - Janakpuri (which is contiguous to one of the largest residential colonies in Asia), Laxmi Nagar and Shivaji Place - are under construction. Moreover, Jhandewalan, which was originally developed in the 1950s, is now being re-developed into a district centre. It has been proposed that, in addition to these seven completed or partially completed centres, some 20 additional district centres be developed by the end of the century. (The district centres, parts of which will be set aside for informal sector activities, are expected to generate some 700,000 new jobs, principally in trade, commerce, and services.) The DDA also intends to develop 82 community centres in the existing urbanized area of Delhi and 40 centres in the urban extension, that is, in contiguous areas designated for development. Finally, two sub-Central Business Districts are expected to be developed by the end of the century - one in the Shahdara area and the other in the urban extension.

To contain the trend of rapid employment growth in the manufacturing sector (and to preserve the environment), the Master Plan stipulates that only small, non-polluting industries will be allowed within the urban area. Heavy industries, units employing more than 20 workers, and a total of about 5,000 units of a noxious or hazardous type will be required to move to planned industrial areas within a five-year period. Units in non-conforming areas that have less than 20 workers will be reviewed within 5-10 years, and a decision will then be made as to whether they should be shifted. Sixteen light industrial estates, some of which have been designated for specific types of industries, will be developed in the urban extension, whereas heavy industries (including new industries and relocatees) will be confined to two 265-hectare sites in the urban extension. The only new industries that will be allowed to start up within the urban area will be small-scale units, and particularly those that are capital intensive, energy saving and non-polluting. Household industries with a maximum of five workers, and that use less than 1 kilowatt of power, will be allowed to operate within residential areas; moreover, new industries of this type will also be permitted.

In view of the large projected increases in employment in the public sector (table 5), the revised Master Plan stipulates that in the future only essential central government offices and liaison offices of other Government undertakings should be located in Delhi. Noting that public services was one of the sectors (along with wholesale trade) attracting the largest migration to Delhi, the plan emphasized that



employment in this sub-sector should be distributed among the various regional towns and counter magnets in the National Capital Region and beyond, whereas new offices should be required to set up outside Delhi.

With respect to policy instruments, it is now generally acknowledged that a lack of adequate incentives was one of the factors which impeded the decentralization strategy outlined in the 1962 Master Plan. Hence, in the second master plan, a package of stronger incentives will be offered, particularly for the decentralization of government offices, including uniform housing rent allowances, city compensatory allowances at scales applicable in Delhi, health scheme benefits, and the provision of higher quality housing near places of work.

In addition to the Union Territory of Delhi, the Government has identified three other levels of planning: for the Delhi Metropolitan Area (DMA), for the National Capital Region (NCR), and for a number of more distant counter-magnets. Noting that development projects in the DMA were likely to have significant impacts upon the Union Territory, the DDA has noted that the entire Delhi Metropolitan Area should be considered one urban agglomeration, at least for planning purposes. In particular, the DDA has emphasized the importance of co-ordinated planning in the transportation sector. Also, the outer areas of the DMA are seen as the most feasible location for those offices of the central government and headquarters of various public services that will be asked to seek alternative sites outside the Union Territory.

The next level of planning, the National Capital Region (NCR), is an area of 30,000 square kilometres which includes the Delhi Metropolitan Area (DMA), two districts in Uttar Pradesh, three districts in Haryana and sub-districts in Haryana and Rajasthan (fig. II). As noted above, the concept of a National Capital Region was first discussed more than 20 years ago. Although the plan was approved, implementation was prevented by the absence of a legal framework, by conflicting land use controls in the participating states, and by differential state and local tax rates. The current strategy for the NCR involves the development of 18 growth centres, including six ring towns - Faridabad-Ballabhgarh complex, Ghaziabad, Gurgaon, Bahadurh, and Loni. Located outside the Union Territory, on the periphery of the Delhi Metropolitan Area, these centres are projected to have populations in the 100,000-300,000 range by the end of the century. In developing a viable National Capital Region, the major issues to be tackled by the participating states will include transportation planning (which will aim at reducing the congestion effects of long-distance freight movements on central Delhi as well as providing linkages to generate growth in small and medium-sized towns); water supply and flood control (which are seen increasingly as regional problems); development of a

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unified administrative and statutory framework, with the idea of working towards the establishment of a common economic market, and employment generation. The latter is particularly important, because planners acknowledge that the main rationale for promoting a National Capital Region strategy is to divert migrants to medium-sized towns in the capital region rather than to areas of central Delhi.

Finally, the Government hopes to establish a series of counter-magnets beyond the NCR. Chosen from a pool of cities that are at present in the 300,000-700,000 range and that have high-level infrastructure, the counter-magnets - which probably will include the cities of Ludhiana, Jullundur, Ambalas, Agra, Mathura, and possibly Jhansi and Gwalior - are considered likely to achieve metropolitan status by the end of the century and therefore would be appropriate sites for central government and public sector undertakings and for large-scale industry.



#### IV. ISSUES AND SECTORS

##### A. The labour market

In recent years, at least according to census data, Delhi has not had a serious labour absorption problem. Whereas the urban population of the Union Territory grew by an average annual rate of 4.7 per cent during 1971-1981, and the total population by about 4.3 per cent, employment in industry (which accounted for 29 per cent of the labour force) grew by 6.9 per cent per annum. Construction (which employed 6 per cent of the labour force) grew at an average annual rate of 6.6 per cent, whereas trade and commerce (which employed 21 per cent) grew by 5.6 per cent per annum. The growth rate of employment in transportation and communications, 4.5 per cent, was only slightly below the rate of urban population growth. "Other services" employed 31 per cent of the labour force and grew by 3.2 per cent per annum, followed by agriculture, which grew by 2.2 per cent. One of the most salient features of the labour market in Delhi is that the overall share of the informal sector is very high - about 63 per cent in 1980 (Town and Country Planning Organisation).

Between 1981 and 2001, planners forecast that Delhi's labour force will expand from 1,986,000 to 4,908,000 - an increase of more than 2,900,000 jobs (Delhi Vikas Varta, 1985). (The latter figure includes a floating population of 490,000 persons who are expected to come to Delhi to work but will not reside there.) Projections of the labour force by sector assume that the proportion of workers employed in agriculture will decline to around 1.6 per cent by the end of the century. Employment in construction is expected to decline slightly, from a little over 6 to about 5 per cent. The proportion of workers employed in industry (29 per cent), trade and commerce (21 per cent), and other services (31 per cent), is forecast to remain more or less constant, whereas employment in transportation and communications is projected to increase from 9 to 11 per cent (table 5).

Acknowledging that the recent growth of jobs in manufacturing, as well as in trade and commerce, has been mainly the result of growth in the informal sector, planners assume that one half of all new jobs in Delhi will be created in the informal sector (Delhi Development Authority, 1981a). Given the importance of the informal sector to Delhi's economy, and the lack of information on its functioning, the Town and Country Planning Organisation (of the Ministry of Works and Housing) sponsored an empirical study of an informal industrial cluster, Anand Parbat, which is located in western Delhi in a non-conforming area zoned for recreational use in the 1962 Master Plan. The study was undertaken with the goal of understanding more about patterns of employment, productivity, capital, turnover, linkages with other



economic activities, socio-economic characteristics of the workers, and requirements of the area from a physical planning point of view. The study concluded that the nearly 2,000 non-conforming establishments in the Anand Parbat area, which employed nearly 12,000 workers, were fairly resilient and produced surprisingly sophisticated end-products (even though they were not in a position to take advantage of the benefits normally made available to small industries in Delhi, such as the procurement of essential raw materials at concessional rates). Notwithstanding their small capital base, and considerable physical and financial constraints, per worker productivity was reasonably high. Although the study did not include any concrete policy recommendations, it recommended that informal sector establishments such as those at Anand Parbat should be assisted by the recognition of their existence, the granting of tenure, and by the provision of basic minimum services - e.g., water supply, storm water drainage, sewerage, a better circulation network, and more open space (Town and Country Planning Organisation, 1983).

#### B. Urban land

Delhi is in a unique position among Indian cities with respect to land. In the late 1930s, some 10,500 hectares of Government land were given to the Delhi Improvement Trust by the colonial authorities. Following Independence, to facilitate implementation of the Master Plan, the Government of India approved the Scheme for the Large-Scale Acquisition, Development and Disposal of Land in Delhi (1961), and designated the Delhi Development Authority (DDA) as the chief developer. In brief, the legislation aimed at streamlining the nation-wide procedure for acquiring and allocating land, which was outlined in the Land Acquisition Act of 1894. With seed capital of Rs 5 crore and a loan of an equivalent amount, a Revolving Fund was also established, which operated by ploughing back profits from auctioned land. As of 1983, through the mechanism of the Revolving Fund, the DDA had developed some 18,200 hectares of land for residential, commercial and recreational uses (Ribeiro, 1982).

Although the underlying purpose of the 1961 legislation and the Revolving Fund was to create an urban land bank that would prevent speculation and ensure the use of land as a resource for the common good, the nationalization of land in Delhi was not as rapid as anticipated. One consequence of the delay was the unauthorized use of urban land. (It is estimated, for example, that nearly 200,000 Delhi households currently reside in 600 unauthorized colonies.) Another has been a squeeze on land for new area development, which has caused developers to reduce the minimum size of residential plots (from 67 to 21 square metres) and to build at higher densities (Ribeiro, 1982).



In spite of the shortage of land for new area development, the DDA is continuing its efforts to improve the ecology of Delhi through preservation of so-called green buffers and the construction of artificial lakes. The DDA also plans to reclaim 2,800 hectares of land along the Yamuna River (although mainly to alleviate flooding and to prevent the river from shifting its course).

In the future, with selective infilling and modification of densities, the DDA estimates that the holding capacity of an area originally planned for 4,600,000 inhabitants might be increased to accommodate 8,200,000. However, given the fact that the population within the urbanized area of the Union Territory is targeted to increase to at least 12,200,000 by the end of the century, planners acknowledge that the remaining 4,000,000 inhabitants will have to be accommodated at fairly high densities in the urban extension. Since 1981, some 4,000 hectares of agricultural land have been already developed and added to the urbanized area, and planners acknowledge that another 20,000 hectares will probably need to be converted to urban uses (Delhi Vikas Varta, 1985).

### C. Housing

Beginning in the 1950s, the Delhi Development Authority (DDA) began constructing resettlement colonies to accommodate the massive influx of refugees after partition. Since that time, the DDA has resettled more than 1,000,000 persons, in what it terms the world's largest resettlement programme. Recently, in response to public pressure, the DDA has announced that it will upgrade services in some of the oldest refugee colonies, which were built at lower standards than those subsequently set forth in the 1962 Master Plan. Since 1972 the DDA has also been implementing a large-scale slum improvement programme. During 1984/85 some 200,000 residents of notified slums (i.e., slums that will be eventually granted tenure) benefited from the provision of new facilities, such as water supply, sewers, storm water drains, community baths and latrines, multi-purpose community halls, and street lighting, as well as the widening and paving of lanes.

The DDA is continuing to construct large resettlement colonies, but currently for homeless squatters rather than for refugees. For a number of years, efforts were made to regularise squatter communities located on public land and to gradually upgrade them. In cases where tenure could not be granted, squatters were moved to resettlement colonies on the periphery of the city. In all, under the Jhuggi Jhopri Removal Scheme, 11/ 44 colonies have been developed over the past two decades. Recently, the DDA has begun a programme of accommodating squatters in temporary transit camps on the periphery, so that communities will not



spontaneously develop in unsuitable areas and later have to be cleared. The DDA also operates 18 night shelters (i.e., tents) in the walled city to provide temporary accommodation for pavement dwellers.

In addition to establishing resettlement colonies and implementing slum improvement programmes, one of the DDA's major tasks has been the construction of conventional housing units, mainly for middle and higher income groups. Since 1966/67, when it constructed its first 160 houses, the DDA has steadily increased its output, constructing 17,000 units in 1980/81, more than 20,000 units in 1981/82, and 25,000 units in 1982/83. In spite of these efforts, the production of housing units by the DDA has not kept pace with the rapid demand. As of 1985, 158,000 Delhi households (100,000 of which were lower-income households) were on waiting units for various types of public housing. According to studies prepared as an input to the second Master Plan, as of 1981 Delhi's total of 1,150,000 households were accommodated in various types of housing schemes: housing developments, plotted housing, multifamily dwellings, resettlement colonies, squatter settlements, unauthorised colonies, and villages. Taking into account the total number of squatters, families without shelter and those sharing dwellings in congested older areas of the city, and the large stock of dilapidated and unsafe dwellings, the DDA estimated that the current housing shortage was about 300,000. Coping with the needs of the additional 1,300,000 households expected to be added to Delhi's population by the end of the century, the DDA estimated that some 1,620,000 new housing units would be required in the next two decades. This would mean that an average of 65,000 units that would have to be constructed during 1981-1986, 76,000 units during 1986-1989, 87,000 during 1991-1996, and 97,000 during 1996-2001 (Delhi Vikas Varta, 1985).

Although the major experience of the DDA has been in the area of completed housing (for which there is a strong preference among the general population), the DDA has recently reported that it is changing its approach. Mainly because of the strong growth in demand, but also because of such factors as affordability, efficiency in land use, equity, and flexibility, planners in the DDA have recently decided that the most appropriate type of general housing would be partially built housing on individual plots of 70-80 square metres. In such housing schemes, houses could be built in stages as affordability permitted. For the poorest households, single family housing could be provided on minimum sized plots of 32 square metres. Through such housing schemes, the DDA estimated that a gross residential density of 350-400 persons per hectare could be maintained within the urbanized area, and of 180-230 per hectare in the Union Territory as a whole (Delhi Vikas Varta, 1985).



In addition to slum upgrading, the DDA is also stepping up construction of new housing schemes for lower income households. One of its major ongoing projects is Rohini, a planned settlement of 850,000-1,000,000 inhabitants that will be totally self-contained. Within an area of 2,500 square hectares, Rohini will have plotted housing schemes, community centres, work centres (which are expected to generate employment for some 300,000 workers), health centres, and other social infrastructure. Ninety-seven per cent of the plots in Rohini's residential schemes have been earmarked for the lowest income households, known in India as the economically weaker sections.

#### D. Water supply and environmental problems

The supply of raw water in Delhi cannot meet current demand, which is higher than in India's other metropolitan cities because of the large population of embassy personnel and tourists. Moreover, the water supply is unevenly distributed. The large section of the population living in resettlement colonies and unauthorized colonies as well as in new housing developments on the periphery have limited access to treated water and must frequently resort to the use of unsafe ground water. Moreover, even in an area where the basic infrastructure is in place - e.g., in the walled city - one quarter of houses do not have municipal water supply connections.

For a number of years, planners considered that current and projected water shortages were one of Delhi's most serious infrastructure problems. Beginning in the early 1980s, the municipal authorities drew up a total water balance sheet, indicating the availability of water within and from outside the region, and urged the central Government to increase Delhi's share of water from the Yamuna River. Since that time, work has gone forward on several major dams - one in Uttar Pradesh and three in Himachal Pradesh - which are expected to provide a major share of Delhi's water requirements up to the end of the century. The balance is expected to be met by conservation measures - e.g., negotiating the exchange of treated waste water for raw water with neighbouring states. In addition to increasing the raw water supply, the DDA reports that the capacity of existing water treatment plants is planned to be increased and a new water treatment plant constructed in North West Delhi by the end of the century. As a means of improving distribution, the municipal authorities are considering making hookups compulsory in the walled city.

Seventy per cent of Delhi's total population does not have access to water-borne sewerage. The proportion is nearly 100 per cent in the unauthorized colonies and in many of the resettlement colonies and the new planning divisions, and is as high as 50 per cent in the walled



city. Currently, of the 242 million litres of liquid waste that is generated daily, only 46 million litres receive full treatment and 72 million litres receive partial treatment before entering the Yamuna River. By the end of the century, Delhi will require a sewerage treatment capacity of 700 million litres per day - six times the current capacity. By increasing the capacity of existing treatment plants and constructing new treatment plants in North and West Delhi, planners are hopeful that total capacity could be augmented to 900 million litres per day by 2001. Wherever possible, efforts will be made to extend sewerage connections. In areas where this is not immediately feasible, such as in the resettlement colonies, low-cost sanitation projects will be implemented in the short term. Delhi also has a problem with solid waste. The current method of disposing of waste in sanitary landfills may not be capable of dealing with the large projected increase in solid waste. Planners therefore envisage establishing new treatment sites on the periphery as well as within the urban area.

The Yamuna River has a high level of water pollution resulting mainly from untreated sewage and waste from industrial areas. Average air quality in Delhi is also very poor because of pollution from engineering, textile and chemical industries, thermal power plants, and automobile emissions (Delhi Development Authority, 1981c). Beyond requesting manufacturers to comply with environmental legislation and establishing a network of air quality monitoring systems, the DDA's major effort to improve the environment is its revised zoning restrictions, which will prohibit polluting industries from operating in residential areas.

#### E. Power

Delhi and the surrounding region currently have an inadequate supply of power. Moreover, some areas of the city such as the resettlement colonies are very poorly serviced. Although demand is expected to increase rapidly, planners believe that the availability of power will not constrain Delhi's future growth. The Government expects to satisfy future demand by encouraging power generation by the private sector, which was responsible for the power sector until 1951. There is continuing concern, however, over Delhi's power distribution network; the DDA has noted that, unless efforts are made to provide more equitable distribution by area, sectors, and categories of use, there may be excessive concentration at some locations.



#### P. Health and education

Although levels of morbidity and mortality are lower in Delhi than the national average, the situation is far from satisfactory. As of 1982/83 the city had a total of 66 hospitals (a ratio of one hospital per 10,000 inhabitants), 524 dispensaries (a ratio of 7.6 per 10,000), and 82 family welfare clinics (a ratio of 1.2 per 10,000). Whereas the Master Plan recommended a ratio of 40 hospital beds per 10,000 inhabitants, the current ratio is only 23, and there are extreme geographical imbalances within the city - ranging from 90 beds per 10,000 inhabitants in New Delhi (NDMC), to 10 per 10,000 in West Delhi and the Trans Yamuna area, to only 0.5 per 10,000 in North West Delhi. By 2001, using a standard of 40 beds per 10,000 population, Delhi will require an additional 35,800 hospital beds, nearly three times the existing number.

With respect to the provision of family planning services, during 1983/84 Delhi's family welfare centres performed more than 24,000 sterilization operations (about 2,000 vasectomies and nearly 22,000 tubal ligations) and inserted more than 40,000 intra-uterine devices. (Delhi Administration, 1984).

As of 1980-1981, there were 1,726 primary schools, 326 middle schools, and 708 secondary schools in Delhi, which provided education to nearly 100 per cent of children in the 6-11 year old age group, 77 per cent of children of middle school age (ages 11-14), and 46 per cent of children of secondary school age (ages 14-17) (Delhi Administration, 1985b). In recent years, the Government's policy has been to construct combined primary/middle/secondary schools, which are more cost effective and represent a more economical use of urban space.

#### G. Transport

Delhi has over 500,000 motorized vehicles, 20 per cent of all the motorized vehicles in India and the largest of any city in India both in per capita and absolute terms. Bus transportation is the most important transportation mode, accounting for more than half of daily trips, followed by bicycles (22 per cent), scooters and motorcycles (10 per cent), and private automobiles (4 per cent) (Delhi Development Authority, 1981d). The other major forms of transportation - scooter rickshaws, taxis and rail transportation - each account for only 1-2 per cent of total daily trips. Given the high cost of energy, planners in Delhi hope to rationalize the bus transportation network and to promote the greater use of bicycles, which, along with walking, are the chief transportation mode of the lowest income groups. 12/



In the long term, Delhi's transportation planners hope to minimize commuting (there are currently 700,000-800,000 daily commuters) by creating employment near residential complexes in dispersed locations. In the medium term, the Government intends to restructure the regional transportation network so as to cope with demand, reduce congestion and minimize transit time, 13/ and promote its decentralization strategy. In deciding to develop a multimodal transportation system, the municipal authorities rejected the idea of building a high speed metro - which could possibly reinforce centralization - in favour of electrifying the existing ring railway. To date, however, the performance of the ring railway has been disappointing, and passenger movement has actually declined (Delhi Vikas Varta, 1985). Eventually, however, the areas around the ring railway will be restructured, and the line is expected to link current and planned district centres, as well as work centres that will be developed near the railway, thereby encouraging peripheral movement.

In addition to the ring railway, the Government intends to develop a light rail transit line (LRT). With a capacity of 20,000 passengers per hour, the electrified LRT is seen by planners as being cost-effective, convenient (because it runs on streets), relatively safe, and less polluting. The 200 kilometres of light rail line proposed for construction by 2001 will be an alternative to the bus transportation system wherever high capacity movement is required. The Government also intends to increase the number of public buses and to restructure the existing bus routes, mainly to complement rather than compete with the ring railway. In addition, as a means of reducing congestion and improving environmental conditions in the walled city, which has a large volume of slow moving vehicles, the Government has been studying the possibility of introducing tramways and restricting automobile traffic and buses to the major roads. With the goal of promoting the greater (and safer) use of bicycles, transportation planners have been also considering establishing fully or partially segregated cycle routes along the major traffic corridors.

With respect to intra-city transport, Delhi's transport network is strongly radial, with five railway lines and nine roads (five of which are national highways) converging on the city. The Government has proposed constructing four metropolitan rail terminals (to serve part of the proposed urban extension in North Delhi, South Delhi, West Delhi and the Trans-Yamuna area), as well as four new interstate bus terminals, each located within close proximity to the railway terminals. In addition, in an effort to bypass the congested areas of central Delhi, efforts will be made to develop integrated freight and market complexes at decentralized locations (Delhi Development Authority, 1981d).



## V. RESOURCES AND MANAGEMENT

### A. Public investment

A breakdown of public expenditure for Delhi Administration in 1982/83 reveals that, out of a total budget of Rs 39 crores, economic services accounted for the largest share (28.7 per cent) - mainly because of the large outlays on electricity, gas and water, and on transport and communications. General public services had the second largest share (26.2 per cent), followed by education (24.0 per cent), housing 14/ and other community services (12.0 per cent), health services (6.1 per cent), social security and welfare services (2.4 per cent), and cultural, recreational and religious services (0.6 per cent) (Delhi Administration, 1985b).

### B. Resource generation

Revenues from taxes and duties account for 98 per cent of total revenue receipts of Delhi Administration. Of these taxes and duties, the sales tax is the most important, accounting for 65.8 per cent of total revenues, followed by the state excise tax (20.7 per cent), taxes on goods and the passengers terminal tax (5.4 per cent), taxes on vehicles (2.8 per cent), other taxes and duties on commodities and entertainment (2.7 per cent), and stamps and registration fees (2.6 per cent) (Delhi Administration, 1985a).

The Delhi Development Authority is in a unique position among development authorities in India's major cities, in that it has been able to finance development projects through the mechanism of the Revolving Fund, by which the DDA purchases land and later credits the fund with proceeds from the sale of developed land. Although initially confined to the acquisition of land and land development, the scope of the fund has been substantially enlarged in recent years to include construction of sheds, warehouses and factories, bus terminals, and so forth, as well as the development of district, sub-district and community centres. During 1971-1981 the Fund (which was initially created with seed capital of Rs 5 crores and was later increased by a grant from the Government of India of Rs 7.3 crores) was revolved to the extent of Rs 150 crores, and grew to about Rs 75 crores. (The sale of industrial plots brought in Rs 24 crores and the sale of commercial land brought in Rs 17 crores.)

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### C. The institutional context

Following a 1936 report by the colonial Government, which noted extreme congestion in the walled city and its overspill, a Delhi Improvement Trust was established to "execute schemes for ameliorating living conditions." By 1955, when it was clear that the demands on services resulting from the massive refugee influx needed to be tackled in a more comprehensive manner, a Delhi Development (Provisional) Authority was established. Following the drafting of an Interim Plan for Delhi (1956) and passage of the Slum Areas Improvement and Clearance Act (1956), the Delhi Development Authority (DDA) was established, replacing both the provisional authority and the improvement trust; in the same year the Municipal Corporation of Delhi, which was charged with providing services for urban and rural areas, was established. Taken together, these steps comprised the earliest attempts at integrated urban planning and development in India.

The DDA functioned mainly as a housing authority during the 1960s and 1970s, growing from a staff of around 500 to more than 30,000 employees. In 1977 the Government of India decided that the DDA should co-ordinate all development efforts for Delhi up to 2001; consequently, a Perspective Planning Wing was established and began operations in mid 1979 with a small planning staff. In recent years, apart from housing, land development, and control of development along the lines proposed in the Master Plan, the DDA has been responsible for a number of large-scale projects: three district centres, a cycle market, and a new interstate bus terminal and a number of projects for the Asian Games held in 1982 (e.g., the Games Village and Indraprastha Indoor Stadium).

As for the development of institutional arrangements to plan the National Capital Region, for a number of years planners and policy makers discussed the need for a unified legal framework (because the lack of such a framework was one of the major reasons for the failure of the earlier attempt to develop a unified capital region). Also, there was recognition of the need for some type of empowering legislation to formally create a National Capital Region and to establish a related planning body. After several years of discussion, the National Capital Region Planning Board Act was decreed in 1985, and the National Capital Region Planning Board was formally established. The Planning Board will co-ordinate the efforts of the Union Territory and the adjoining states through a the National Capital Region Plan. In addition, it has been agreed that the Town and Country Planning Organisation (of the Ministry of Works and Housing) will oversee the planning of the Delhi Metropolitan Area (DMA), in consultation with the central and state governments and under the overall guidance and control of the NCR Planning Board.



## CONCLUSION

In many respects, Delhi is a model city by developing country standards. Many of its ancient historical areas have been preserved within parks or special areas where development has been restricted. The large areas of the central city that were formally planned by Edwin Lutyens remain essentially unchanged since the period of British rule. The road network is well laid out and better equipped than that of most other large Indian cities to deal with rapid increases in the number of motorized vehicles. Modern housing complexes have been financed and constructed at a rapid rate through the efforts of the city's strong and highly visible development authority, the Delhi Development Authority (DDA).

In other respects, Delhi is a city of striking contrasts, with a highly skewed distribution of income, and sprawling, high-density, low-income areas next to affluent low density neighbourhoods. Planners acknowledge that a great deal needs to be done in addressing some of the city's major infrastructure deficits. The city's power supply, water supply, sewerage network, and solid waste treatment facilities are not capable of dealing even with current demand. Given the rapid growth of the Delhi Metropolitan Area (DMA), which has yet to show signs of decelerating, coping with projected demand in these sectors by the end of the century poses a major challenge. Moreover, there is evidence of growing political demands (e.g., from residents of the large, densely populated resettlement colonies such as those in the Trans-Yamuna area), which have already forced the DDA to allocate a larger share of its resources to upgrading conditions in these areas.

For many years, planners considered that Delhi's major problems (e.g., congestion in the walled city, degradation of the environment, pressure on basic services) could be resolved by creating a number of decentralized industrial sites and neighbouring residential colonies. For the most part, this decentralization strategy is still being pursued after some 20 years, although with some modifications to bring Delhi's policies more in line with priorities of the central Government as outlined in the current Sixth Plan. For example, some of the restrictions on industrial location have been relaxed, and efforts have been made to promote small and medium-sized non-polluting industries, as outlined in the Sixth Plan. Likewise, the revival of the National Capital Region concept and the strategy of channeling migrants to medium-sized cities reflect priorities identified in the Sixth Plan. Overall, however, the basic outlines of the revised Master Plan strategy remain unchanged. The DDA plans to go ahead with plans for establishing district and sub-district centres, for decentralizing public sector jobs and for creating a National Capital Region.



Anticipating some of the obstacles to implementation of this strategy, there has been little enthusiasm to date for decentralizing public sector jobs. Whereas the Master Plan anticipated that many governmental agencies would be relocated in peripheral areas during the past decades, this did not occur. In fact, many more offices moved into central Delhi in the intervening years, often in contravention of zoning laws. Clearly, any large-scale shift of government offices will require significant political will. Another obstacle has been the lack of a legal and institutional framework and a unified data base for the planned National Capital Region. Still another is the fact that many of the outlying urban centres in the planned national capital region have been growing very rapidly and have serious infrastructure lags that will make it difficult for them to absorb new migrants. Clearly, a great deal of further effort will be required if the National Capital Region is to become a reality.

In conclusion, in all of its undertakings, Delhi has been fortunate in not having resource constraints as severe as those of other metropolitan cities. Through the mechanism of the Revolving Fund and large grants from the Government of India, the DDA has been able to construct numerous high standard housing complexes and large, costly projects such as the facilities for the Asian Games - projects that were partly designed to underline Delhi's role as the capital of a large and very important third-world country. In the future, however, it is likely that hard choices may have to be made between enhancing the image of Delhi as India's capital city and upgrading living standards for its large and rapidly growing population.

#### Notes

1/ The Union Territory of Delhi is an area of 1,483 square kilometres that has the same administrative status as a state. Of the Union Territory's total geographical area, 891 square kilometres are classified as rural and 592 square kilometres are classified as urban.

2/ The 12 metropolitan areas, in descending order of population size, are: Calcutta, Bombay, Delhi, Madras, Bangalore, Hyderabad, Ahmedabad, Kanpur, Pune, Nagpur, Lucknow, and Jaipur.

3/ Per capita income in 1982/1983 at current prices was Rs 3,314 in Delhi, compared to Rs 2,525 in Maharashtra, Rs 1,767 in West Bengal, Rs 1,376 in Tamil Nadu, and Rs 1,868 for India as a whole. Delhi's level of per capita income ranked third among the 22 states and union territories and was exceeded only by Pondicherry (Rs 3,630) and Punjab (Rs 3,502) (Delhi Administration, Estimates of State Income of Delhi, 1984).



4/ As of 1985 Delhi had 4,335 hectares of developed park land and 1,667 hectares of potential park land available for development (Delhi Vikas Varta, 1985).

5/ In the four censuses conducted between 1881 and 1911, Delhi was classified as a district of the Punjab.

6/ The area of Delhi urban agglomeration, which was 327 sq kms in 1961, increased to 446 sq kms in 1971, and to 540.7 sq kms in 1981.

7/ The Marathas were some of the earliest inhabitants of the part of India that now constitutes the State of Maharashtra.

8/ Many of the refugees had urban backgrounds. They had higher levels of education than the general population and much higher levels than the non-refugee migrants. Also, because they came mainly as intact families, they did not send remittances back to their villages, as did most of the non-refugee migrants.

9/ In 1981, more than three quarters of Delhi's 49,000 industrial units had fewer than 10 workers and more than 90 per cent had fewer than 20 workers; in contrast, less than 1 per cent employed more than 100 workers.

10/ A survey conducted in 1981 concluded that 80-95 per cent of the produce in certain wholesale markets (e.g., fruits) and a large proportion of wholesale trade in finished goods was destined for other Indian cities.

11/ Jhompri is the Hindi word for hut; a jhuggi is a hut that is larger and perhaps slightly more permanent.

12/ Individual motorized transport is the predominant mode of transportation for households with average monthly incomes of Rs 1,700-2,400, bus transport for households with incomes of Rs 1,100, and cycles for households with incomes of Rs 630 (Delhi Development Authority, 1981d).

13/ It is estimated that 100 man years are wasted each day in waiting for public buses (DDA, Seminar on Transport, 1981).

14/ Housing is a high priority sector, accounting for more than half of total annual expenditure of the DDA (e.g., Rs 112 crore out of Rs 216 crore during 1982/1983).



Annex I: Total population of Delhi (Union Territory), 1981

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Urban

1.	Delhi (DMC)	4 884 234
2.	New Delhi (NDMC)	273 036
3.	Delhi Cantonment	85 166
4.	Samepur	9 147
5.	Bhalswa Jahangirpur	70 301
6.	Jaffarabad	16 148
7.	Babarpur	21 925
8.	Gokalpur	14 972
9.	Mandoli	47 891
10.	Kotla	65 828
11.	Roshanpur alias Dichaon Khurd	5 122
12.	Nangloi Jat	37 623
13.	Sultanpur Majra	56 058
14.	Nangloi Sayed	9 689
15.	Bindapur	9 284
16.	Nasirpur	24 244
17.	Palam	34 378
18.	Mahipalpur	8 765
19.	Rajokri	5 759
20.	Chhattarpur	6 504
21.	Lado Sarai	6 079
22.	Tigri	17 228
23.	Deoli	5 788
24.	Molar Band	5 326
25.	Pul Pehlad	8 788
26.	Bawana	12 637
27.	Alipur	6 735
28.	Pooth Khurd	7 145
29.	Pehladpur Banger	5 011
30.	Bijwasan	7 389
	<u>Total urban</u>	5 768 200
	<u>Total rural</u>	452 206
	<u>Grand total</u>	6 220 406

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Source: Registrar General and Census Commission. Census of India 1981:  
Final Population Totals (Delhi, Controller, of Publications).



Selected sources

Government documents

Delhi Administration. 1983. Bureau of Economics and Statistics.  
Economic Census 1980: Summary Results.

\_\_\_\_\_. 1984. Delhi Quarterly Digest of Economics and Statistics.  
vol. 32, Nos. 1 and 2.

\_\_\_\_\_. 1985a. Index of Industrial Production for Quarter Ending March  
1985 and the Year 1984/85.

\_\_\_\_\_. 1985b. Estimates of State Income of Delhi, 1970/71-1982/83.

\_\_\_\_\_. 1985c. Report on Annual Survey on Industries, 1981/82.

\_\_\_\_\_. Office of the Chief Registrar. 1983. Registration of Births  
and Deaths Act. Annual Report.

Delhi Development Authority. 1981a. Perspective Planning Wing. Seminar  
on Employment: 1981-2001.

\_\_\_\_\_. 1981b. Seminar on Infrastructure: 1981-2001.

\_\_\_\_\_. 1981c. Seminar on Regional Context: 1981-2001.

\_\_\_\_\_. 1981d. Seminar on Transportation: 1981-2001. vols. 1 and 2

Delhi Vikas Varta, vol. 2, No. 2 (Special Issue 1985).

India. 1975. Registrar General and Census Commissioner. Census of  
India 1971: General Population Tables. Delhi, Controller of  
Publications.

\_\_\_\_\_. 1982. Census of India 1981: Final Population Totals. Delhi,  
Controller of Publications.

\_\_\_\_\_. 1983. Census of India 1981: Primary Census Abstracts.  
Delhi, Controller of Publications.

\_\_\_\_\_. 1985. Census of India 1981: Migration Tables. Delhi,  
Controller of Publications.

Town and Country Planning Organisation. 1983. Ministry of Works and  
Housing. Informal Sector in a Metropolis. Case Study of Delhi  
Informal Industrial Cluster: Anand Parbat.



Other sources

- Mohan, Rakesh and Chandrashekhar Pant. 1982. "Morphology of urbanisation in India: some results from 1981 census," Economic and Political Weekly, vol. XVII, Nos. 38 and 39 (September).
- Rao, V.K.R. and P.B. Desai. 1965. Greater Delhi: A Study in Urbanisation, 1940-1957. (New Delhi, Asia Publishing House).
- Ribeiro, E.F.N. 1982. Urban Land Policies in the Context of the Development Plan for Delhi. Times Research Foundation Seminar on Land in Metropolitan Development, held at Calcutta, 17-18 April.
- Singh, Kawaljit. 1982. Urban Land Financing and Land as a Resource in Metropolitan Development: Delhi Experience. Times Research Foundation Seminar on Land in Metropolitan Development, held at Calcutta, 17-18 April.















